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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/287,264	04/07/1999	PASCAL AGIN	Q053917	6095

7590 03/12/2002

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EXAMINER

MOORE, JAMES K

ART UNIT

PAPER NUMBER

2682

DATE MAILED: 03/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	09/287,264	Applicant(s)	AGIN ET AL.
Examiner	James K Moore	Art Unit	2682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 16 January 2002.
2a) This action is FINAL. 2b) This action is non-final.
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-23 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) Claim(s) 21 is/are allowed.
6) Claim(s) 1-7, 9, 10, 12-20, 22 and 23 is/are rejected.
7) Claim(s) 8 and 11 is/are objected to.
8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____.
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) Other:

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DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on January 16, 2002 have been fully considered but they are not persuasive.

The applicant's arguments relating to Vembu's "burst mode" and "tracking mode" not being separate algorithms was previously addressed by the examiner in the Advisory Action mailed on October 22, 2001 (Paper No. 16).

In regards to applicant's argument concerning claim 4, the claim recites that the algorithms "are chosen in a group comprising closed-loop power control algorithms and open-loop power control algorithms". The examiner recognizes that open-loop and closed-loop algorithms are different, and has not asserted otherwise. Rather, the examiner's position is that because Vembu's algorithm are closed-loop, they are from the group which comprises closed-loop and open-loop algorithms.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 3-7, 10, 14, 19, 20, 22, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Vembu.

Regarding claim 1, Vembu discloses a method for improving the performance of a mobile radiocommunication system using a power control algorithm (tracking mode

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algorithm), the method comprising: regularly estimating if a criterion is met (received signal-to-noise ratio is below a nominal level) as to whether the power control algorithm should better be deactivated; and deactivating the power control algorithm if the criterion is met. See col. 4, lines 18-57, col. 6, lines 18-67, and Figure 3.

Regarding claim 3, Vembu discloses everything claimed as applied to claim 1 above, and additionally discloses that the deactivation includes performing a different algorithm (burst mode algorithm) instead. See Figure 3.

Regarding claim 4, Vembu discloses everything claimed as applied to claim 3 above, and in addition, his algorithms are chosen in a group comprising closed-loop and open-loop power control algorithms (both are closed-loop algorithms.) See col. 4, lines 18-57 and col. 6, lines 18-67.

Regarding claim 5, Vembu discloses everything claimed as applied to claim 1 above, and additionally discloses that the power control method comprises: regularly estimating if the criterion is met as to whether the power control algorithm should better be deactivated, when activated, or activated, when deactivated; and deactivating, or activating the power control algorithm if the corresponding criterion is met. See col. 4, lines 18-57, col. 6, lines 18-67, and Figure 3.

Regarding claim 6, Vembu discloses everything claimed as applied to claim 1 above, and additionally discloses that the power control method includes a provision which prevents the algorithm from deactivating or activating too frequently: modification of the signal-to-noise ratio threshold to be a range of values, rather than a single value. See col. 7, lines 1-6.

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Regarding claim 7, Vembu discloses everything claimed as applied to claim 1 above, and additionally discloses that estimation as to whether the criterion is met is based on an estimation of a deviation value, representative of a deviation between an estimated transmission quality (signal-to-noise ratio of a received signal) and a target transmission quality (signal-to-noise threshold value). See col. 4, lines 18-57 and col. 6, lines 18-67.

Regarding claim 10, Vembu discloses everything claimed as applied to claim 7 above, and additionally discloses that the estimated transmission quality is represented by a received signal power (signal-to-noise ratio). See col. 4, lines 18-57 and col. 6, lines 18-67.

Regarding claim 14, Vembu discloses everything claimed as applied to claim 1 above, and additionally discloses that the power control method may be implemented in any communication system and further mentions the use of power control methods in CDMA communication systems. See col. 1, lines 36-53 and col. 3, lines 32-40.

Regarding claim 19, Vembu discloses an apparatus for improving performances of a mobile radiocommunication system comprising: a receiver (112); and a means for performing a power control algorithm (track mode or burst mode algorithm), the power control algorithm monitoring a first parameter (SNR) received by the receiver for controlling the power control algorithm; wherein the power control algorithm is deactivated based on the value of second parameter (the difference between the SNR and a threshold). See col. 6, lines 18-67.

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Regarding claim 20, Vembu discloses all of the limitations as applied to claim 19 above. Furthermore, the second parameter (difference between the SNR and the threshold) is an estimation based on the first parameter (SNR) received by the receiver.

Regarding claim 22, Vembu discloses a method for improving the performance of a mobile radiocommunication system using a power control algorithm (tracking mode algorithm), the method comprising: regularly estimating if a criterion is met (received signal-to-noise ratio is below a nominal level) as to whether the power control algorithm should better be deactivated; and deactivating the power control algorithm if the criterion is met. The de-activation of the tracking mode algorithm includes performing a different algorithm (burst mode algorithm). See col. 4, lines 18-57, col. 6, lines 18-67, and Figure 3.

Regarding claim 23, Vembu discloses a method for improving the performance of a mobile radiocommunication system using a power control algorithm (tracking mode algorithm), the method comprising: regularly estimating whether a criterion will or will not be met (comparing signal-to-noise ratio to the nominal level) by the operation of the power control algorithm, and de-activating the power control algorithm in accordance with a result of the estimating step. See col. 4, lines 18-57, col. 6, lines 18-67, and Figure 3.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vembu in view of Chen. Regarding claim 2, Vembu discloses everything claimed as applied to claim 1 above but does not disclose that the deactivation includes performing the algorithm with a relatively higher repetition period. However, Chen discloses a power control method in which deactivation of a power control algorithm includes performing the algorithm with a relatively higher repetition period (switching between slow and fast power control feedback modes). See col. 2, line 49 through col. 3, line 23. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Vembu's power control method with Chen's teaching by performing the power control algorithm with a relatively higher repetition period if the signal-to-noise ratio falls below the nominal value in order to adapt the operation of the power control algorithm to the environment of the radiocommunication system.

6. Claims 9, 12, 13 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vembu in view of well known prior art (MPEP 2144.03). Regarding claim 9, Vembu discloses everything claimed as applied to claim 7 above but Vembu fails to disclose that the estimated transmission quality is represented by an estimated signal-to-interference ratio. However, the Examiner takes Official Notice that it is conventional and well known in the art to determine the quality of a transmission based on the measured signal-to-interference ratio. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Vembu's invention by

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representing the estimated transmission quality by an estimated signal-to-interference ratio because it is conventional and well known in the art to determine the quality of a transmission based on the measured signal-to-interference ratio.

Regarding claims 12 and 13, Vembu disclose everything claimed as applied to claim 1 above, but Vembu fails to disclose whether the method is performed in the uplink or downlink transmission direction of the mobile radiocommunication system. However, the Examiner takes Official Notice that it is conventional and well known in the art to perform power control in both the uplink and downlink transmission directions of mobile radiocommunication systems. It would have been obvious to one of ordinary skill in the art at the time of the invention to perform Vembu's power control method in either the uplink or downlink transmission direction of the mobile radiocommunication system because it is conventional and well known in the art to perform power control in both directions.

Regarding claims 15 and 17, Vembu discloses everything claimed as applied to claim 1 above, and additionally discloses a mobile radiocommunication network entity/mobile station (104A) comprising, for performing the power control method: means (112A) for performing the method, and means (108A) for sending corresponding power control commands to a mobile station/network entity (104B). See col. 4, lines 18-57 and col. 6, lines 18-67.

Regarding claims 16 and 18, Vembu discloses everything claimed as applied to claim 1 above, and additionally discloses a mobile station/network entity (104B), comprising, for performing the method: means (112B) for receiving power control

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commands from a mobile radiocommunication network entity/mobile station (104A), according to the method. See col. 4, lines 18-57 and col. 6, lines 18-67.

Allowable Subject Matter

7. Claim 21 is allowed.

8. Claims 8 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The present invention is directed to a method for improving the performance of a mobile radiocommunication system using a power control algorithm in which a determination as to whether the power control algorithm should be de-activated is made by estimating if a criterion is met. The estimation is based on an estimation of a deviation value representative of a deviation between an estimated transmission quality and a target transmission quality.

Claim 8 identifies the uniquely distinct feature "wherein said estimation as to whether said criterion is met includes: an estimation of a first deviation value, which would have been obtained if said power control algorithm had always been activated, on a given time-interval on which said deviation is estimated; an estimation of a second deviation value, which would have been obtained if said power control algorithm had never been activated, on said given time-interval on which said deviation value is

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estimated; and a choice between activation and de-activation of said algorithm depending on which of said first and second deviation values is the lowest.”

Claim 11 identifies the uniquely distinct feature “wherein said estimated deviation value is represented by the variance of said estimated transmission quality.”

Claim 21 identifies the uniquely distinct feature “wherein said estimating step includes: an estimation of performance of said system with said power control algorithm activated; and an estimation of performance of said system with said power control deactivated”.

The closest prior art, Vembu, discloses a method for improving the performance of a mobile radiocommunication system using a power control algorithm in which a determination as to whether the power control algorithm should be de-activated is made by estimating if a criterion is met, but fails to anticipate or render the above underlined limitations obvious.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ken Moore, whose telephone number is (703) 308-6042. The examiner can normally be reached on Monday-Friday from 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin, can be reached at (703) 308-6739.

Any response to this action should be mailed to:

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Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Ken Moore

3/8/02 JK/M



VIVIAN CHIN
SUPERVISORY PATENT EXAMINER
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